

Remarks/Arguments

Examiner Timothy J. Henn is thanked for the continued thorough Search and Examination of the Subject Application for Patent.

Claims 1, 26, 35, and 39 have been amended to clarify that no white balance amplifiers or white balance controllers are used in the Claims 1, 3, 4, 6-10, 12-20, 22-23, 26, 28-33, 35-36, 39, and 40. Claims 1, 3, 4, 6-10, 12-20, 22-23, 26, 28-33, 35-36, 39, and 40. The basis for these amendments to Claims 1, 26, 35, and 39 can be found in the Specification from page 5, line 38 to page 6, line 2.

The Examiner has argued that the claims as written do not exclude the use of white balance amplifiers or white balance controllers. Claims 1, 26, 35, and 39 have been amended to clarify that the methods, systems, and imagers described in Claims 1, 3, 4, 6-10, 12-20, 22-23, 26, 28-33, 35-36, 39, and 40 do not use white balance amplifiers or white balance controllers. These amendments to Claims 1, 26, 35, and 39 are introduced at this time in response to the Examiner's comments.

Reconsideration of the Rejection of Claims 1, 3, 4, 6, 12-20, 22, 26, 28, 29, 31, 33, 35, 36, 39, and 40 under 35 U.S.C. 103(a) as being unpatentable over Hashimoto (US 4,768,085) in view of Ogawa et al. (US 7,142,233) in view of Roberts (US 5,541,654) is requested. Claim 21 has been cancelled. Claims 1, 3, 4, 6, 12-20, 22, 26, 28, 29, 31, 33, 35, 36, 39, and 40 describe a color imaging system for compensating a

color response. Key elements of Claims 1, 3, 4, 6, 12-20, 22, 26, 28, 29, 31, 33, 35, 36, 39, and 40 are analog amplification and compensation of a first color component, analog amplification and compensation of a second color component, an analog summing amplifier for summing two elements associated with a third color component and outputting an analog sum of the two elements associated the third color component, analog amplification and compensation of the sum of the two elements associated with the third color component, and an array controller adapted to control the readout of the elements associated with the first, second and third color components. Claims 1, 3, 4, 6, 12-20, 22, 26, 28, 29, 31, 33, 35, 36, 39, and 40 do not describe the use of white balance amplifiers or a white balance controller and the systems and methods of Claims 1, 3, 4, 6, 12-20, 22, 26, 28, 29, 31, 33, 35, 36, 39, and 40 do not require nor use white balance amplifiers or white balance controllers because the color amplification, compensation, and summation is performed on analog signals before these signals are digitized.

Hashimoto describes an image sensing apparatus which has the ability to read adjacent horizontal lines sequentially and simultaneously; column 3, lines 59-65. However in processing the signals produced by the pixels in the adjacent horizontal lines in the array Hashimoto uses two white balance amplifiers, 4 and 5, and a white balance controller, WB, see Fig. 3 and column 4, lines 55-59. Claims 1, 3, 4, 6, 12-20, 22, 26, 28, 29, 31, 33, 35, 36, 39, and 40 are significantly different from Hashimoto because the systems and methods described by Claims 1, 3, 4, 6, 12-20, 22, 26, 28, 29, 31, 33, 35, 36, 39, and 40 use analog amplification, summation, and compensation and do not use nor require the use of white balance amplifiers or white balance controllers.

Ogawa et al. describe an image pickup element including a plurality of photo detectors each having a color filter array, a vertical direction selection circuit, a horizontal direction selection circuit, and an output circuit. Roberts describes an imaging device which includes the ability to scan the pixels in windows of the array, or sub-arrays, more frequently than the pixels in the rest of the array; column 10, lines 9-21. However Ogawa et al. and Roberts do not make analog color amplification, analog summation, and analog compensation without the use of white balance amplifiers or white balance controllers an obvious extension of Hashimoto.

It is believed that analog color amplification, analog summation, and analog compensation without the use of white balance amplifiers or white balance controllers make Claims 1, 3, 4, 6, 12, 13-20, 22, 26, 28, 29, 31, 33, 35, 36, 39, and 40 patentably distinct from Hashimoto in view of Ogawa et al. in view of Roberts. Reconsideration of the Rejection of Claims 1, 3, 4, 6, 12, 13-20, 22, 26, 28, 29, 31, 33, 35, 36, 39, and 40 under 35 U.S.C. 103(a) as being unpatentable over Hashimoto in view of Ogawa et al. in view of Roberts; and allowance of Claims 1, 3, 4, 6, 12, 13-20, 22, 26, 28, 29, 31, 33, 35, 36, 39, and 40; are requested. Claim 21 has been cancelled.

Reconsideration of the Rejection of Claims 7, 8, 30 and 32 under 35 U.S.C. 103(a) as being unpatentable over Hashimoto (US 4,768,085) in view of Ogawa et al. (US 7,142,233) in view of Roberts (US 5,541,654) as applied to Claim 1, and further in view of Boisvert et al. (US 5,329,312) is requested. Key elements of Claims 7, 8, 30,

and 32 are analog amplification and compensation of a first color component, analog amplification and compensation of a second color component, an analog summing amplifier for summing two elements associated with a third color component and outputting an analog sum of the two elements associated the third color component, analog amplification and compensation of the sum of the two elements associated with the third color component, and an array controller adapted to control the readout of the elements associated with the first, second and third color components. Claims 7, 8, 30, and 32 do not describe the use of white balance amplifiers or a white balance controller and the systems and methods of Claims 7, 8, 30, and 32 do not require nor use white balance amplifiers or white balance controllers because the color amplification, compensation, and summation is performed on analog signals before these signals are digitized.

As indicated by the Examiner Boisvert et al. describe an improved signal processing system which provides white balancing with minimal dark level differences using separate programmable gain amplifiers for each pixel color which are temperature compensated. It is believed that Claims 7, 8, 30 and 32 are different from and not obvious from Hashimoto in view of Ogawa et al. in view of Roberts for the reasons given above in the response to the rejection of Claim 1. It is further believed that Boisvert et al. do not make analog color amplification, analog summation, and analog compensation without the use of white balance amplifiers or white balance controllers; as is described in Claims 7, 8, 30, and 32; an obvious extension of Hashimoto in view of Ogawa et al. in view of Roberts.

It is believed that analog color amplification, analog summation, and analog compensation without the use of white balance amplifiers or white balance controllers make Claims 7, 8, 30, and 32 patentably distinct from Hashimoto in view of Ogawa et al. in view of Roberts, and further in view of Boisvert et al. Reconsideration of the Rejection of Claims 7, 8, 30 and 32 under 35 U.S.C. 103(a) as being unpatentable over Hashimoto in view of Ogawa et al. in view of Roberts, and further in view of Boisvert et al.; and allowance of Claims 7, 8, 30 and 32; are requested.

Reconsideration of the Rejection of Claims 9 and 10 under 35 U.S.C. 103(a) as being unpatentable over Hashimoto (US 4,768,085) in view of Ogawa et al. (US 7,142,233) in view of Roberts (US 5,541,654) in view of Boisvert et al. (US 5,329,312) as applied to Claim 7 and further in view of Zhou et al. (IEEE) is requested. Key elements of Claims 9 and 10 are analog amplification and compensation of a first color component, analog amplification and compensation of a second color component, an analog summing amplifier for summing two elements associated with a third color component and outputting an analog sum of the two elements associated the third color component, analog amplification and compensation of the sum of the two elements associated with the third color component, and an array controller adapted to control the readout of the elements associated with the first, second and third color components. Claims 9 and 10 do not describe the use of white balance amplifiers or a white balance controller and the systems and methods of Claims 9 and 10 do not require nor use white

balance amplifiers or white balance controllers because the color amplification and summation is performed on analog signals before these signals are digitized.

It is believed that Claims 9 and 10 are different from and not obvious from Hashimoto in view of Ogawa et al. in view of Roberts in view of Boisvert et al. for the reasons given above in the response to the rejection of Claims 1 and 7. As indicated by the Examiner, with reference to Zhou et al., programmable gain amplifiers contained within the pixel circuitry and within a plurality of column buffers is known. It is believed that Zhou et al. do not make analog color amplification, analog summation, and analog compensation without the use of white balance amplifiers or white balance controllers, as is described in Claims 9 and 10, an obvious extension of Hashimoto in view of Ogawa et al. in view of Roberts in view of Boisvert et al. Reconsideration of the Rejection of Claims 9 and 10 under 35 U.S.C. 103(a) as being unpatentable over Hashimoto in view of Ogawa et al. in view of Roberts in view of Boisvert et al. and further in view of Zhou et al., and allowance of Claims 9 and 10, are requested.

Reconsideration of the Rejection of Claim 23 under 35 U.S.C. 103(a) as being unpatentable over Hashimoto (US 4,768,085) in view of Ogawa et al. (US 7,142,233) in view of Roberts (US 5,541,654), as applied to Claim 1, and further in view of Sano et al. (IEEE) is requested. Key elements of Claim 23 are analog amplification and compensation of a first color component, analog amplification and compensation of a second color component, an analog summing amplifier for summing two elements associated with a third color component and outputting an analog sum of the two

elements associated the third color component, analog amplification and compensation of the sum of the two elements associated with the third color component, and an array controller adapted to control the readout of the elements associated with the first, second and third color components. Claim 23 does not describe the use of white balance amplifiers or a white balance controller and the systems and methods of Claims 23 does not require nor use white balance amplifiers or white balance controllers because the color amplification and summation is performed on analog signals before these signals are digitized.

It is believed that Claim 23 is different from and not obvious from Hashimoto in view of Ogawa et al. in view of Roberts for the reasons given above in the response to the rejection of Claim 1. As indicated by the Examiner, with reference to Sano et al., the use of a micro-lenses layer is known. It is believed that Sano et al. do not make analog color amplification, summation, and compensation without the use of white balance amplifiers or white balance controllers, as is described in Claim 23, an obvious extension of Hashimoto in view of Ogawa et al. in view of Roberts. Reconsideration of the Rejection of Claim 23 under 35 U.S.C. 103(a) as being unpatentable over Hashimoto in view of Ogawa et al. in view of Roberts, and further in view of Sano et al.; and allowance of Claim 23; are requested.

In summary it is believed that Claims 1, 3-4, 6-10, 12-20, 22-23, 26, 28-33, 35-36, and 39-40 distinguish patentably from the references and allowance of Claims 1, 3-4, 6-10, 12-20, 22-23, 26, 28-33, 35-36, and 39-40 is requested.

It is requested that should Examiner T. J. Henn not find that the Claims are now Allowable that the Examiner call the undersigned Attorney at (845)-452-5863 to overcome any problems preventing allowance.

Respectfully submitted,

A handwritten signature in black ink, appearing to read 'S. B. Ackerman', with a stylized, flowing script.

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